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09/410,916	10/01/1999	JEROME H. LUDWIG	PIPE/04	7644

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WOOD, HERRON & EVANS, LLP  
2700 CAREW TOWER  
441 VINE STREET  
CINCINNATI, OH 45202

EXAMINER
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CHORBAJI, MONZER R

ART UNIT	PAPER NUMBER
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1744

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 16

Application Number: 09/410,916  
Filing Date: October 01, 1999  
Appellant(s): LUDWIG, JEROME H.

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For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 10/03/2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement explaining the lack of appeals or interferences is contained in the brief.

**(3) Status of Claims**

The statement of the status of the claims contained in the brief is correct.

**(4) Status of Amendments**

The statement identifying the status of amendments in the brief is correct.

**(5) Summary of Invention**

The summary of invention contained in the brief is correct.

**(6) Issues**

The appellant's statement of the issues in the brief is correct.

**(7) Grouping of Claims**

The rejection of claims 23-31 stand or fall together because appellant's brief does include a statement that this grouping of claims does stand or fall together but fails to provide reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

6,076,536	Ludwig et al.	6-2000
5,512,249	Singh	4-1996

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 23-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig et al (U.S.P.N. 6,076,536) in view of Singh (U.S.P.N. 5,512,249).

With respect to claim 23, Ludwig discloses a method for passivating a fire sprinkler system (col.3, lines 26-32) by isolating a section of a water distribution pipe (col.5, lines 5-7) such a system intrinsically includes a plurality of heat-sensitive sprinkler heads. With regard to the step of removing the water, since Ludwig isolates a section of the system, then such a step will intrinsically involves removing some water from the isolated section. Then, Ludwig teaches of inactivating the sprinkler heads by first removing them (col.5, lines 20-21) without indicating if such heads have been replaced with temporary fittings. Removing the sprinkler heads before or during the

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application of the sterilant is well within the scope of the artisan. However, when the sprinkler heads are removed, then it is an intrinsic step to cover such openings in order to clean the interior of the system. Then, Ludwig teaches of delivering sterilant heated in the range of 10 degree Celsius to 80 degree Celsius over the water in the system, which depending on the temperature of the water in the system may intrinsically include steam, for a duration to kill microorganisms in the isolated section (col.3, lines 42-48). Then, Ludwig returns the passivated section to operation (col.5, lines 15-19). However, Ludwig fails to disclose the explicit use of steam and the use of a temperature sensor. Singh teaches of sterilizing the interior surfaces of conduits by using steam (col.3, lines 61-67 and col.4, lines 1-9). Furthermore, Singh discloses the use of a temperature sensor (figure 1, 23 and col.3, lines 15-21). It would have been obvious to one having ordinary skill in the art to modify the method of Ludwig by substituting one type of sterilant (heated liquid sterilant) by another (steam) since steam is a well known sterilant in the art of sterilization.

With respect to claims 24-25, Ludwig teaches of purging the sterilant with gas and also teaches that water can be used as well (col.3, lines 53-54). However, since Ludwig is using biocides to insure the sterility of the treated section, then it is intrinsic for Ludwig method to use sterile gas as well as sterilized water.

With respect to claims 26-28, Ludwig teaches of maintaining passivity of the treated section by using water (col.4, lines 18-19 and 21-22) upon return to operation. Also, Ludwig teaches of using air (col.3, line 54). Thus, the choice of medium to

maintain the treated section upon return to operation is well within the scope of the artisan.

With respect to claim 29, as mentioned above, Ludwig teaches of removing the sprinkler heads, which intrinsically involves replacing them with fittings in order to passivate the interior surfaces of the isolated section. However, the choice of a fitting is obvious and is well within the scope of the artisan.

With respect to claim 30, Singh teaches that the desired temperature of the steam is 120.5 degree Celsius.

With respect to claim 31, even though Ludwig does not disclose of passivating sprinkler heads, however, one having ordinary skill in the art would have been motivated to clean the heads in order to insure the complete passivation of fire sprinkler systems as taught by Ludwig.

**(11) Response to Argument**

***Issue 1***

On page 4 of the brief, appellant argues that, "Therefore, appellant's earlier Ludwig '536 does not disclose a fire sprinkler system containing a plurality of heat-sensitive sprinkler heads, nor does it teach inactivating them".

Ludwig is a sprinkler system (emphasis added). It is believed doubtful that a sprinkler system would have only one sprinkler. Also, although Ludwig may not explicitly state that they deactivate the sprinkler head it is not believed credible that they would attempt to clean a system while the sprinkler heads are activated.

On page 4 of the brief, appellant argues that, "Furthermore, the examiner's reference to the use of a second sterilized gas at column 2, line 40 is in error".

The appellant reference to column 2, line 40 is in error with regard to the use of a second sterilized gas. On page 4 of the final office action dated 04/07/2003, the examiner refers to column 3, line 54 NOT column 2, line 40 for the use of a second sterilized gas.

### ***Issue 2***

On page 5 of the brief, appellant argues, "The examiner assumes that appellant's earlier Ludwig '536 patent involves removing some water when in fact that patent is based upon adding and aqueous cleaning solution to the section to be cleaned".

It is not believed credible that Ludwig et al would attempt to force the cleaning solution into a system that is still filled with water.

### ***Issue 3***

On page 5 of the brief, appellant argues, "However, appellant's Ludwig '536 does not disclose heat-sensitive sprinkler heads and, obviously, the examiner's assumption that in any event sprinkler heads may be removed before or during the application, indicates a lack of understanding of appellant's method".

Ludwig is a sprinkler system (emphasis added). It is believed doubtful that a sprinkler system would have only one sprinkler. Also, although Ludwig may not explicitly state that they deactivate the sprinkler head it is not believed credible that they would attempt to clean a system while the sprinkler heads are activated.

On page 5 of the brief, appellant argues, "Appellant is using steam which would affect the heat-sensitive sprinkler heads and render applicant's method inoperative if, as the examiner suggests, the sprinkler heads were present during the application of the steam".

It is believed reasonable that one of ordinary skill in the art would attach the steam supplying means of Singh in a conventional manner knowing when steam at a certain temperature is injected into a sprinkler system would activate sprinkler heads and therefore inactivate the sprinkler heads.

#### ***Issue 4***

On page 5 of the brief, appellant argues, "The examiner contends when the sprinkler heads are removed, then it is an intrinsic step to cover such openings in order to clean the interior of the system. There is absolutely no support in appellant's Ludwig '536 for this assumption".

It is believed reasonable that one of ordinary skill in the art would in substituting sterilants from liquid to steam one would either inactivate or remove and cap the sprinkler heads to accommodate for using a heated source of sterilant.

#### ***Issue 5***

On page 6 of the brief, appellant argues, "In contrast, Ludwig '536 teaches the use of an aqueous cleaning solution not a sterilant as the examiner contends. Further, it is impossible to make steam at such temperatures".

Ludwig '536 teaches that the aqueous chemical cleaning solution can be heated above (emphasis added) the system water temperature to a temperature in the range of



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bout 10 to about 80 degree Celsius (col.2, lines 34-37). For example, the conventional water temperature in pipes is bout 25 degrees Celsius. Then the aqueous chemical solution will be heated to a temperature of about 105 degrees Celsius resulting in the formation of steam. In addition, the cleaning solution of Ludwig et al is being replaced by the steam of Singh to clean the sprinkler conduits.

### ***Issue 6***

On page 6 of the brief, appellant argues, "While Singh does teach a temperature sensor/discharge valve at the end of the transfer line, it does not teach the use of temperature sensors to insure sterilization of his conduit".

Singh uses sensors to maintain the temperature within the conduit at a set point (col.3, lines 15-21) in order to insure sterilization of the interior surfaces of conduits. See col.3, lines 40-48 and col.4, lines 50-54).

On pages 6-7 of the brief, appellant argues, "In other words, Singh is totally deficient when reference is made to the claimed steps of appellant's main method 23 for thermally sterilizing a fire sprinkler system and all claims 24-31 which depends therefrom".

It is believed that applicant is in error with respect to using a sterilizing steam to replace the cleaning solution of Ludwig et al. Ludwig et al at col.1, lines 10-20 teach that it is recognized that aerobic and other bacteria are well known to impair water distribution system. Singh is analogous because it solves the common problem of killing harmful bacteria in fluid conduits.

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On page 7 of the brief, appellant argues, "Appellant's Ludwig '536 patent does not teach the purging of sterilant with gas".

Ludwig '536 does teach the purging of sterilant with gas. See col.3, lines 54-55.

On page 7 of the brief, appellant argues, "It is not intrinsic for the Ludwig '536 method to use sterile gas or sterilized water".

Ludwig et al at col.1, lines 10-20 teach that it is recognized that aerobic and other bacteria are well known to impair water distribution system. In addition, Ludwig et al in col.3, lines 52-55, teaches of using various mediums for removing the aqueous chemical solution including air or passivated water. Then it is believed that one skilled in the art would not re-contaminate the sprinkler system by introducing non-sterile gas or untreated water.

Respectfully submitted,

Monzer R. Chorbaji *MRC*  
Patent Examiner  
Au 1744  
December 12, 2003

Conferees  
Robert J Warden  
Roy King

*Robert J. Warden, Sr.*  
ROBERT J. WARDEN, SR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

ADDITIONAL CONFEREES:

ROY KING *RK*  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

DAVID J. JOSEPHIC  
WOOD, HERRON & EVANS, L.L.P.  
2700 CAREW TOWER  
441 VINE STREET  
CINCINNATI, OH 45202-2917